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ABSTRACT

This report presents an overview of recent efforts to promote small schools by first reviewing the rationale for small schools based on recent studies linking school size and various educational outcomes, followed by arguments supporting larger schools. Succeeding sections explore the following four ways to reduce the negative effects of school size: build smaller schools; utilize satellite facilities; reallocate space in existing schools; and redesign and renovate existing schools. Focusing on the third and fourth options, the report identifies a variety of ways in which large schools are being downsized. A brief description of one such project is provided, followed by a discussion of design issues related to the subdivision of large schools into smaller units. (Contains 23 references.) (GR)

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Reducing the Negative Effects of Large Schools

National Clearinghouse for Educational Facilities

ED 454 698

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After decades of building large schools, many communities have begun to reconsider the benefits of bigness. New York City and Chicago have attracted national attention by subdividing large schools into smaller, more "personalized" units (Genevro 1990, Public Education Association 1989, Wasley *et al.* 2000). The Education Commission of the States (1996) has endorsed smaller schools and urged policy makers to provide funds and technical support to help communities implement them. The National Association of Secondary School Principals (1996) has echoed this call with a plea for secondary schools to offer adolescents learning environments that are more "personalized." The Annenberg Trust and the Bill and Melinda Gates Foundation have channeled funds to school systems and research centers in an attempt to encourage the development of small schools. Across the nation an assortment of new learning environments—alternative schools, focus schools, charter schools, schools-within-schools, career academies—have emerged, all sharing one common feature—small size. During the Clinton administration, the Department of Education championed small schools as an antidote to low student achievement and school safety problems.

This overview of recent efforts to promote small schools begins by reviewing the rationale for small schools, drawing on recent studies linking school size and various outcomes. Arguments for large schools are examined next. The succeeding section looks at four ways to reduce the negative effects of school size—build smaller schools, utilize satellite facilities, reallocate space in existing schools, and redesign and renovate existing schools. Focusing on the third and fourth options, the paper identifies a variety of ways in which large schools are being downsized. A brief description of one such project is provided, followed by a discussion of design issues related to the subdivision of large schools into smaller units.

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The Case for Small Schools

Various arguments can be advanced in defense of small schools. A study of Chicago's efforts to promote small schools, conducted by a research team from Bank Street College of Education (Wasley et al. 2000, p. 2), identified four primary reasons:

> Why create small schools? Above all, in order to address four specific problems: to create small, intimate learning communities where students are well known and can be pushed and encouraged by adults who care for and about them; to reduce the isolation that too often seeds alienation and violence; to reduce the devastating discrepancies in the achievement gap that plague poorer children and, too often, children of color; and to encourage teachers to use their intelligence and their experience to help students succeed.

Additional reasons include improved school safety and security (Duke, forthcoming) and better coordination among staff members (Fowler and Walberg 1991).

Is there evidence to support these arguments for small schools? The answer is yes.

Some of the evidence comes in the form of testimonials from individual schools. As a result of being subdivided into houses, New York City's DeWitt Clinton High School, for example, went from being one of America's largest and most troubled high schools to one of President Clinton's 96 outstanding high schools (Lakhman 1999). Between 1988, when New York City launched Project Achieve to help struggling high schools, and 1998, DeWitt Clinton raised average daily attendance by over 17 percent, reduced the dropout rate by 8 1/2 percent, and increased the on-time graduation rate by almost 50 percent. Between 1993 and 1998, enrollment in Advanced Placement courses jumped from 131 to 553 and the number of Regents exams that were passed rose from 1,311 to 3,228.

Granby High School in Norfolk, Virginia, is another success story. After an extensive renovation that included subdividing the venerable local landmark into four acad-

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emies, Granby began to re-attract students who had withdrawn to go to private schools (Schnitzer and Caprio 1999). Disciplinary referrals dropped substantially and students reported receiving more individual attention from teachers and other staff members.

One of the first systematic studies to report the benefits of small school size was Barker and Gump's *Big School, Small School.* Among their intriguing findings was the fact that students in small schools were more likely to participate in school-sponsored activities than their large school counterparts, even though large schools tended to offer more activities. In a comprehensive review of 103 studies of school size, Cotton (1996) noted, among other positive findings, that students in small schools viewed particular subjects and school in general more positively.

Several large-scale studies reinforce the positive experiences at Clinton and Granby. An investigation of school size effects in 293 New Jersey public secondary schools found that, next to district socioeconomic status and the percentage of students from low-income families, school size was the best predictor of student achievement on state tests (Fowler and Walberg 1991). Students in smaller schools, regardless of socioeconomic status, tended to do better on state tests.

Researchers for the Rural School and Community Trust looked at 13,000 schools in Georgia, Montana, Ohio, and Texas and found that smaller schools consistently outperformed larger schools (Keller 2000). Perhaps more important, smaller schools posted higher scores on standardized tests than would have been predicted from their poverty levels alone. In other words, the negative effects of poverty are reduced in smaller schools.

A nationwide study of school size and student achievement in reading and mathematics also produced encouraging findings. Lee and Smith (1997) examined data from the National Educational Longitudinal Study of 1988 and found that school size was an important predictor of test performance. Additional convincing evidence comes from studies of Chicago's efforts to create small schools (Klonsky and Klonsky 1999, Wasley et al. 2000). In 1988 the Chicago School Reform Act initiated a massive effort to downsize large schools. More than 150 small elementary and secondary schools resulted from this initiative. The schools range in size from 200 to 400 students. When Bank Street College of Education researchers studied these schools, they found evidence of improved student achievement, persistence, and attendance. In addition, parents, teachers, students, and community members were more satisfied with the small schools.

Confirmation of the Bank Street study comes from another study of Chicago schools. Lee and Loeb (2000) investigated the relationship between school size and two outcomes: teachers' attitudes about their responsibility for student learning and students' gains in mathematics achievement over a one-year period. Data from 264 K–8 schools revealed that schools enrolling fewer than 400 students were characterized by more positive teacher attitudes and higher student achievement.

As part of a comprehensive review of research on effective secondary schools, Lee, Bryk, and Smith (1993, pp. 187–89) considered the impact of school size on school climate. They argued that smaller enrollments facilitate group cohesion, the frequency of communication between individuals, and the general management of the school. Larger schools typically must be subdivided into departments or other units, with the consequence that school loyalties and inter-unit cooperation may be affected adversely. Subcultures form more easily in large schools, threatening the focused mission that has been associated with school effectiveness.

How small is small? Do studies provide guidance regarding the optimal size for a school?

In a comprehensive study of schools, Goodlad (1984) found that the top-performing schools in his sample tended to be smaller schools. Based on his data, he recommended that elementary schools enroll no more than 300 students and secondary schools no more than 600 (Goodlad 1984, pp. 309–10). Lee and Smith (1997) found a curvilinear relationship between student achievement and high school size. Achievement tended to drop when high schools enrolled fewer than 600 and more than 900 students. The adverse effects of size were particularly great for poor and minority students. The greatest negative effects were found in high schools enrolling more than 2,100 students.

Raywid and Oshiyama (2000, p. 446) stop short of specifying an ideal number of students. Instead, they offer a more qualitative set of criteria regarding school size:

> What do high schools need to be...? Small enough so that people can know one another. Small enough so that individuals are missed when they are absent. Small enough so that the

participation of all students is needed. Small enough to permit considerable overlap in the rosters from one class to another. Small enough so that the full faculty can sit around a table together and discuss serious questions. Small enough to permit the flexibility essential to institutional responsiveness—to the special needs of individuals and to the diverse ways teachers want to teach.

The Case against Small Schools

Between 1967 and 1984 the number of secondary schools in the U.S. declined from 27,011 to 23,389 (Fowler and Walberg 1991, p. 199). The impetus for this reduction derived, in part, from the belief that consolidating several small schools into one large school yielded economic and curricular benefits. Presumably large schools operated more efficiently than small schools and offered students a wider array of courses and programs.

Finding convincing research to confirm these presumptions is somewhat difficult, however. Educational finance experts who tout the economies of scale that supposedly result from school consolidation have not conducted "optimal-size studies" that actually assess the effects of school size on student achievement and other outcomes (Fowler and Walberg 1991, p. 199). Lee, Bryk, and Smith (1993, pp. 185–87), in a comprehensive review of research, find little empirical support for the benefits of economies of scale that presumably result from large schools.

In an influential book on the comprehensive high school, Conant (1959, p. 77) argued that American high schools needed to grow in size if they were to provide a truly diversified curriculum. When Monk (1987) conducted an extensive study of curricular offerings and high school size in New York State, however, he failed to find benefits of large enrollments. He concluded that "it is possible to offer at the 400 pupil level a curriculum that compares quite favorably in terms of breadth and depth with curriculum offered in much larger settings" (Monk 1987, p. 148).

A third argument for large schools is that they facilitate integration in communities where neighborhoods are racially segregated. While there is validity to such reasoning, other ways exist for promoting integration while preserving the benefits of small schools. Open enrollment policies, for example, allow magnet and specialty schools to maintain student diversity while remaining small.

The presumed advantages of large school size, such as cost savings, must be balanced against data on student outcomes, such as test performance, attendance, graduation rates, school climate, and disciplinary infractions, before educators decide on the best course of action between new construction and renovation.

Four Ways to Reduce the Negative Effects of School Size

School systems that want to reduce the negative impact of large schools have four basic options: (1) build small schools, (2) utilize satellite facilities, (3) reorganize and reallocate space in existing schools, and (4) renovate and redesign existing schools.

Build small schools. America's public school infrastructure is literally crumbling in many places. Schools built to accommodate baby boomers in the 1950s and 1960s are wearing out. As school districts face decisions regarding what to do with aging facilities, one option is to replace large schools with brand new schools that are smaller. While the cost of new construction initially may be much greater than renovation, there are immediate benefits as well as the prospect of long-term savings. Building a new school eliminates the problems associated with finding temporary placements for students during renovation. New construction creates opportunities for bold educational initiatives that might be impossible in a renovated facility.

Consider the case of Franklin County, Virginia. When taxpayers indicated that they would not support a bond issue large enough to replace the entire overcrowded and outdated county middle school, district officials decided to build a new learning center to accommodate 500 students, roughly half the county's number of eighth and ninth graders (Duke 1998b). Furthermore, they were determined to construct a facility that would provide young people with unique learning experiences—career-oriented projects that would engage students and help reduce the county's high dropout rate. The result of their efforts was the Center for Applied Technology and Career Exploration (CATCE), a nationally recognized educational facility and program that does not look or function like a conventional school.

Designed to resemble a high-tech business, the 64,000 square foot facility was purposely created without a cafeteria, gymnasium, or library. CATCE consists of eight career centers in which every student has a computer workstation, a large multipurpose conference room, a commons area, and administrative offices. For exercise, students walk to a new YMCA, purposely located across the street from CATCE.

Franklin County eighth graders spend a semester at CATCE engaged in practical, hands-on projects and a semester at the regular county middle school studying traditional subjects. In order to provide students with a more personalized learning environment, Franklin County challenged the belief that students must be housed in the same facility all year.

Other school systems may not have been as imaginative as Franklin County, but they have recognized the importance of small schools. A report by New York City's Public Education Association (1989) recommended that no big high schools be built in the future. High schools should be designed for 500 to 1,000 students and "facilitate a house plan." Excellent examples of newly built small high schools include Chicago's Northside College Prep (capacity 800) and Manassas Park High School (capacity 600) in northern Virginia.

When new construction is called for and it is impossible to build a small school, planners should consider building a large school that has been designed around distinct subunits. This increasingly popular option calls for the division of the physical plant into houses, academies, schools-within-schools, or other configurations intended to combat the negative effects of size. More will be said about these options in the section on renovating existing facilities.

Utilize satellite facilities. Danville, Virginia, was unable to build a new high school, but it desperately needed to relieve pressure on overcrowded George Washington High School. Taking advantage of a nearby vacant junior high school, the school district encouraged teachers from the high school to propose "focus schools" that could be housed in the neighboring facility (Butin 2000). Four proposals initially were accepted, and in the fall of 1997 the Langston Focus School Center opened. Each of the four focus schools had a unique theme, ranging from global studies to business education. The schools opened with approximately 100 ninth graders each. For the next three years a new grade level was added each year as the original cohort moved up. The target enrollment for each focus school currently is 300 students.

A two-year study of the focus schools found that students were achieving at least as well as a matched sample at the main high school, and the retention rate was considerably higher (Butin 2000). Truancy rates and discipline problems were lower for focus school students. Overcrowding at the main high school was relieved and two additional focus schools were approved.

Utilizing a satellite facility presents some challenges. When the facility is not located on the same campus as the main high school, as is the case in Danville, transporting students to and from school becomes more difficult. School administration increases in complexity, since the high school principal's office remains at the main high school. Danville appointed an on-site assistant principal to oversee the focus schools and coordinate activities with the main campus.

Reorganize existing schools. A third option involves reallocating space and reorganizing existing schools without undertaking any major changes in the physical structure of the facilities. Because this strategy is relatively inexpensive compared to others, it has proven to be quite popular. When New York City, for example, undertook a major initiative in the late 1980s to create smaller high school learning environments, it decided to subdivide large high schools into houses and schools-within-schools without making major structural changes (Genevro 1990, Public Education Association 1989).

The initial focus of New York City's House Plan was to create separate learning environments for ninth graders in the city's huge high schools. The ninth grade had been a source of problems for New York City educators, as it had been for educators across the nation. Behavior problems and absenteeism increase in ninth grade, retention is the highest for any grade level, and student achievement plummets. To address these problems, the New York City Board of Education endorsed the creation of more personalized learning environments for ninth graders:

> In a model house plan, students, teachers, administrators, guidance personnel, support staff, and the school building itself are reorganized. Everyone becomes a member of a smaller group with which s/he can identify and in which each individual is needed... Ideally, students take all or the majority of their classes within their house—

> a group to which they belong by choice, not academic ability. Likewise, teachers, administrators, and support staff are organized around a single house (Public Education Association 1989, p. 4).

New York City's plan called for eventually expanding the House Plan to include all high school students. When researchers from Bank Street College of Education studied the earliest efforts to develop houses, they found much about which to be encouraged as well as some concerns. One major concern involved the lack of funds to redesign physical space in order to give each house a distinct identity and provide actual separation from other houses (Public Education Association 1989, p. 21). Since the early days of the House Plan, New York City school authorities have made a concerted effort to correct this problem.

Where existing facilities have been reorganized into subunits, the most popular approaches have been to designate particular corridors, wings, or floors for particular subunits. These options may not always provide complete separation, but they offer a sense of common identity without major adjustments to the physical plant.

A related strategy, "right sizing," has been used in the Washington, D.C., public schools to modify, rather than close, schools in neighborhoods with declining populations of young people. Modifications may involve demolishing certain sections of existing schools or allocating part of the facilities for administrative functions, thereby effecting a reduction in school size.

Renovate and redesign existing schools. Sometimes problems also present opportunities. The fact that many of America's school buildings require extensive modernization and renovation creates an opportunity to not only make needed improvements, but to redesign physical space in order to reduce the negative effects of size. The redesign of existing schools has taken several forms. Chicago, for example, has implemented the following models (Wasley et al. 2000, pp. 10–11):

- **Freestanding.** Like a conventional school, a freestanding small school has its own space, budget, and principal. It can have its own building or be housed in a building with other freestanding schools. Chicago had 53 freestanding small schools in 2000.
- **Multiplex.** One building houses a number of small schools, each of which functions independently but under the same principal.
- **School-within-school.** A small school is located within a large host school. The school-within-school has its own mission and curricular focus, but does not operate independently from the host school.

Renovating and redesigning existing schools typically involves secondary schools, but in the case of Chicago a number of the downsizing projects involved elementary schools. In some cases, the small elementary schools contained two or three grade levels; in other cases, they covered kindergarten through fifth grade. One small school included kindergarten through eighth grade.

Various terms have been used to describe the units that are created when large schools are subdivided. The most frequently used terms are "house" and "academy." Houses may be organized horizontally by grade level, such as a ninth grade house, or vertically, encompassing two or more grades. Academies often have a career focus and, in fact, may be referred to as "career academies." In many cases, houses and academies, as well as schools-within-schools, have a distinct curricular focus. Each high school in Henrico County, Virginia, has a "center of excellence," a specialty school-within-school that draws students from other high schools as well as the host high school. Centers of excellence are devoted to the arts, communications, engineering, foreign language, humanities, leadership, science/mathematics/technology, and an International Baccalaureate program.

"Alternative school" may refer to any freestanding school or school-within-school, but increasingly the term is associated with small schools for students who have been suspended or expelled from a regular school, or who have experienced academic difficulties. A large high school may contain an alternative school, which may operate during regular school hours or as an after-school or evening program.

When middle schools are subdivided, they tend to be designed around pods or clusters. Each pod or cluster contains classrooms for teachers of core subjects and, perhaps, a teacher workroom. A typical arrangement might involve four classrooms—English, social studies, science, and mathematics—all opening onto a common area or atrium. The four teachers in these classrooms function as a team, instructing the same group of 80 to 120 students and planning together. Students take additional subjects elsewhere in the school, but at least half of each day is spent in the same pod or cluster.

Large elementary schools may be subdivided into families and neighborhoods. A "family" might cover the classrooms on one side of a corridor, including a kindergarten, first, second, third, fourth, and fifth grade class. When a group of students completes one grade, they move to the next room on their side of the corridor. The teachers in the family plan together and coordinate instructional activities. A "neighborhood" could encompass two families, or the classrooms on both sides of a corridor. In a neighborhood, a first grade classroom might be located across the corridor from another first grade classroom, a second grade classroom across from another second grade classroom, and so on down the corridor. This arrangement makes it relatively easy for two teachers at the same grade level to coordinate activities, group and regroup students, and conduct joint lessons.

Some elementary schools are designed around pods or clusters, like middle schools. These units may be arranged to include classrooms at the same grade level or various grades.

The reorganization of Julia Richmond. To better understand what is involved in converting a large school into smaller units, consider a specific example. Julia Richmond High School is located in New York City. Built in 1922, the massive five-story, U-shaped building and annex take up a city block. Over the years the physical plant deteriorated and the school's reputation declined. Julia Richmond's graduation rate fell, vandalism and violence rose, and student pride in the school dropped.

To reverse this downward spiral, the New York City Board of Education chose Julia Richmond as one of the first high schools to be reorganized into smaller units. The project took two years (1994–96) to complete, as provisions had to be made to graduate all students from the old Julia Richmond High School before initiating a choice-based set of new schools.

The Julia Richmond Complex, as it now is known, contains six schools, most enrolling approximately 300 students. The schools include:

- Vanguard High School. A typical high school course of study and organizational structure.
- Manhattan International High School. Designed for students with limited fluency in English.
- Talent Unlimited Performing Arts High School. A specialty school that also offers basic courses.
- Urban Academy. A high school for transfer students that is organized around multiage classes.
- Special education junior high school. Designed for severely autistic children.
- Ella Baker Elementary School. An elementary school for children of employees of hospitals in the neighborhood.

Most of the schools occupy their own floor. The Urban Academy is housed in the annex. In addition to the six schools, Julia Richmond has several gymnasiums, a library, a common science lab, a cafeteria, and a health clinic serving all students. When they are not using these facilities, students remain in their separate schools. Double doors separate each school from common areas, and students do not walk through one school to get to their own school. A pedestrian bridge connects the annex to the main building. To cut down on congestion, starting and dismissal times for each school are staggered.

Students in Julia Richmond's schools take full advantage of the complex's location in the midst of an urban area. Those who need to take Advanced Placement courses do so by attending classes in local community colleges. Every Wednesday afternoon, students leave school to perform community service while their teachers plan together and schedule meetings.

Students at Julia Richmond develop a strong loyalty to their particular school. To enhance the feeling of separateness, each school operates as an independent entity, with its own principal, assistant principal, and two counselors. Each school has its own administrative offices and workrooms. To supplement the common science lab on the fifth floor, schools are equipped with lab tables on wheels so that any classroom can become a temporary laboratory.

The Julia Richmond Complex was created without a major investment in redesign. While the basic floor plan was left unaltered, a few large classrooms were subdivided by adding walls. Each school was provided with its own entrance, offices, and storage rooms. The heating and electrical systems had to be rewired and upgraded. Air conditioning was added and two greenhouses were installed on the roof. Asbestos abatement measures were taken in several areas, such as the new dance studio, where old flooring had to be removed. The gymnasiums and library were renovated. A number of cosmetic touches were undertaken, including painting, refurbishing restrooms, and providing new window treatments. The $2.5 million price tag was relatively low because the work was done in-house.

Key Design Decisions

Efforts to reduce the negative effects of school size require a variety of design decisions. Some of the more important decisions are presented in this section.

Who are the intended beneficiaries of the project? Planners must determine whether they want to create smaller learning environments for all students or only some students. While many projects involve subdividing schools into houses or other small units for all students, other projects are based on designing small units just for one group, such as ninth graders or at-risk students. While small learning environments may be advantageous for all students, they may be particularly beneficial or even essential for certain individuals. The latter group may include young people in need of considerable assistance to overcome academic deficits and those who require constant supervision and a great deal of structure.

What is the best way to reduce the negative effects of school size? Deciding how to create small learning environments is a matter of weighing the alternatives against available resources, time constraints, and local politics. On occasion, for example, construction of a new high school to relieve overcrowding may be squelched because influential citizens do not want to distill the power of a local athletic program.

The major options that were presented earlier in this paper include building a small school from scratch, utilizing a satellite facility, reorganizing the space in an existing school, and completely renovating and redesigning an existing school. In the short run, the second and third options probably are the least expensive, but they are not necessarily long-term solutions. Satellite facilities also may require renovation and redesign.

In some cases, local politics will not permit the abandonment of an older facility. When the Norfolk City School District faced a decision regarding the future of Granby High School, it considered building four small high schools in place of the large, but outdated facility (Schnitzer and Caprio 1999). District officials soon realized that Granby was too important a part of the city's history to abandon or destroy. The decision was made to create four academies at Granby and, in the process, renovate the existing facility as well as add additional space. The entire project, completed in 1998, ran approximately $25 million.

Time constraints, as well as politics, can influence the decision on how best to downsize. If one of the central issues is the need to relieve overcrowding, as was the case in Danville, the best option initially may be to utilize a satellite facility. It takes considerable time to plan a new school or renovate an existing facility.

What is the best organizational structure for the project? Planners must decide the type of small units into which a large facility will be subdivided. The options include houses, academies, focus schools, charter schools, schools-within-schools, centers, clusters, team-based pods, families, neighborhoods, and alternative schools and programs. Some options represent autonomous units that share a common facility. Other options represent units of the same school, each subject to the authority of the same principal. Determining the most appropriate structure requires a consideration of financial arrangements, the mission of each unit, and the extent to which key services and spaces must be shared. It makes little sense to create supposedly autonomous units, for example, if they are expected to share the same mission and support services and they lack an independent budget. There are advantages, of course, to independence. Units that enjoy a high degree of autonomy are more likely to generate a unique culture and an inspired commitment to the success of the program.

Upon what basis should units be formed? Units may be constituted in various ways, depending on their purpose. One choice involves the grade level of students. Some houses, for example, are intended only for ninth graders, in order to ease the transition from middle school to high school. Other houses are purposely designed to accommodate students from different grades. In this arrangement, students spend several years in the same house, as they advance from one grade to another.

A second basis for forming small units concerns the means by which students are admitted. Do students choose their unit or are they assigned? Access, in turn, is related to a third basis for unit formation—curricular theme. Many academies and focus schools are organized around a common career cluster or curricular theme, such as science and technology or health-related careers. When units have a specialization, students must be free to choose the one that they will attend. In other cases, random assignment may make the most sense. In the case of alternative schools for students who have

been suspended or expelled, access typically is based on administrative assignment.

The issue of access to units is not without political consequences. Some critics of small schools fear that they provide an opportunity for de facto segregation. They believe that students who are free to choose their small school will do so in a way that undermines the goal of social integration. Since large schools have not always avoided de facto segregation, however, this argument may need to be reconsidered.

What design features are needed to facilitate the creation of small learning environments? Once the preceding questions have been addressed, it is necessary to consider how physical space can be arranged to enhance the downsizing project. As Goodlad (1984, p. 310) has written, "Most existing buildings lend themselves poorly to providing some spatial identity for each school..." He went on to state, "Ideally, some internal reconstruction should accompany the recommended reorganization." In most cases, reorganization requires a balance be struck between separate facilities and shared facilities.

When small units constitute separate schools with their own curricular focus and administration, it is important for each to have a distinct physical identity. Design features such as separate entrances and administrative offices, separate classrooms, unique color schemes and decorations, and a separate commons area or gathering place for students are helpful. Each unit should have, to the extent possible, its own circulation pattern. Staggered class schedules may facilitate this objective when the physical space does not permit completely separate traffic patterns to and from class.

Many large schools that have been subdivided into small autonomous or semi-autonomous units retain a common cafeteria, gymnasium, library/media center, and clinic. When Granby High School in Norfolk, Virginia, was redesigned, the four academies shared a commons area that doubled as a cafeteria. Around the commons were facilities housing a career resource center, a student activities room, a health clinic, an attendance office, and a security office (Schnitzer and Caprio 1999, p. 47).

Staggered scheduling may make it possible for students from different units to each lunch and exercise without overlapping, if planners do not desire such comingling. If each unit has adequate technology, students can access many library resources through the Internet, thereby reducing the need to visit the library/media center.

When units have distinct curricular and career themes, each may require special facilities. A school-within-school devoted to environmental science may require special laboratories and greenhouses. An arts academy may need studios with ample natural light, small stages, rooms for individual music lessons, and considerable space for the storage and display of projects. A health careers focus school may include a working clinic stocked with appropriate equipment.

What problems may occur as a result of subdividing a large school into small units? An obvious problem to watch out for is friction between units. Such friction may result from various causes, ranging from misguided loyalty to competition for scarce space and resources. When certain spaces must be shared by different units, it is helpful to designate one individual as the coordinator of facilities. This person should develop and enforce guidelines for requests to use common areas. It also may be useful to form a steering committee, consisting of representatives from each unit, to handle issues of common concern.

Another potential problem relates to shifting enrollment patterns. When small schools located at the same site are accessible by choice, enrollments can be expected to fluctuate. Such fluctuations may mean that, from time to time, some schools will need more space and other schools will need less space. A mechanism must be worked out for handling such adjustments in a fair and tension-reducing way.

Those who subdivide large schools that are overcrowded need to realize that subdivision is not a cure for overcrowding. Unless square footage is increased as a result of renovation, or some students are reassigned to other facilities, the overcrowding that plagued the large school will be passed on to the subdivided facility. The only relief that may be expected under such circumstances is that problems resulting from overcrowding may be handled more effectively by small units. Still, it is preferable not to tax building capacity when introducing small units.

Recognizing Success

By what yardstick can educators determine whether a project to reduce the negative effects of school size has succeeded? The answer, of course, depends on the specific goals of the project. In general, though, large schools are subdivided to:

1. facilitate a more caring and supportive school culture.
2. reduce feelings of alienation and anonymity that can lead students to drop out.
3. improve student academic achievement.
4. reduce behavior and attendance problems.
5. increase cooperation among teachers.
6. permit teachers to deal with the special concerns of a particular group of students.
7. permit students to focus on a particular and specialized course of study.

Some indicators of success may apply to several of these seven purposes, while others are specific to one purpose. Improved attendance, for example, suggests success not just for purpose 4, but for purposes 1 and 2 as well. It is important for planners to determine the criteria by which they will judge success before they implement their downsizing project. Some possible indicators of success related to one or more of the seven reasons are:

- improved grades and grade point averages
- improved scores of standardized tests
- improved quality of student projects
- greater student commitment to completing school
- improved student attendance
- reduced disciplinary referrals, suspensions, and expulsions
- better relationships between students and teachers
- faster intervention when students experience academic difficulties
- greater student participation in lessons and other instructional activities
- greater student interest in school
- greater student interest in a career
- reduced teacher turnover
- greater cooperation among teachers
- higher graduation rates
- lower dropout rates
- increased parental involvement and school/home communication.

Under certain circumstances, it is conceivable that small schools will produce mixed outcomes. For example, attendance may improve while grades in a particular subject drop slightly. In such cases, stakeholders must consider whether the benefits of downsizing outweigh the costs. Based on the research on small schools, though, it is reasonable to expect more benefits than costs will result from efforts to create smaller learning environments.

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Additional Information

See the NCEF resource list *School Size* online at *http://www.edfacilities.org*

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